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**H4R** RCST

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**GB 2067871 A**

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INT CL[6] **G11B , H04N**
**Online: WPI**

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## (54) Signal recording/playing system

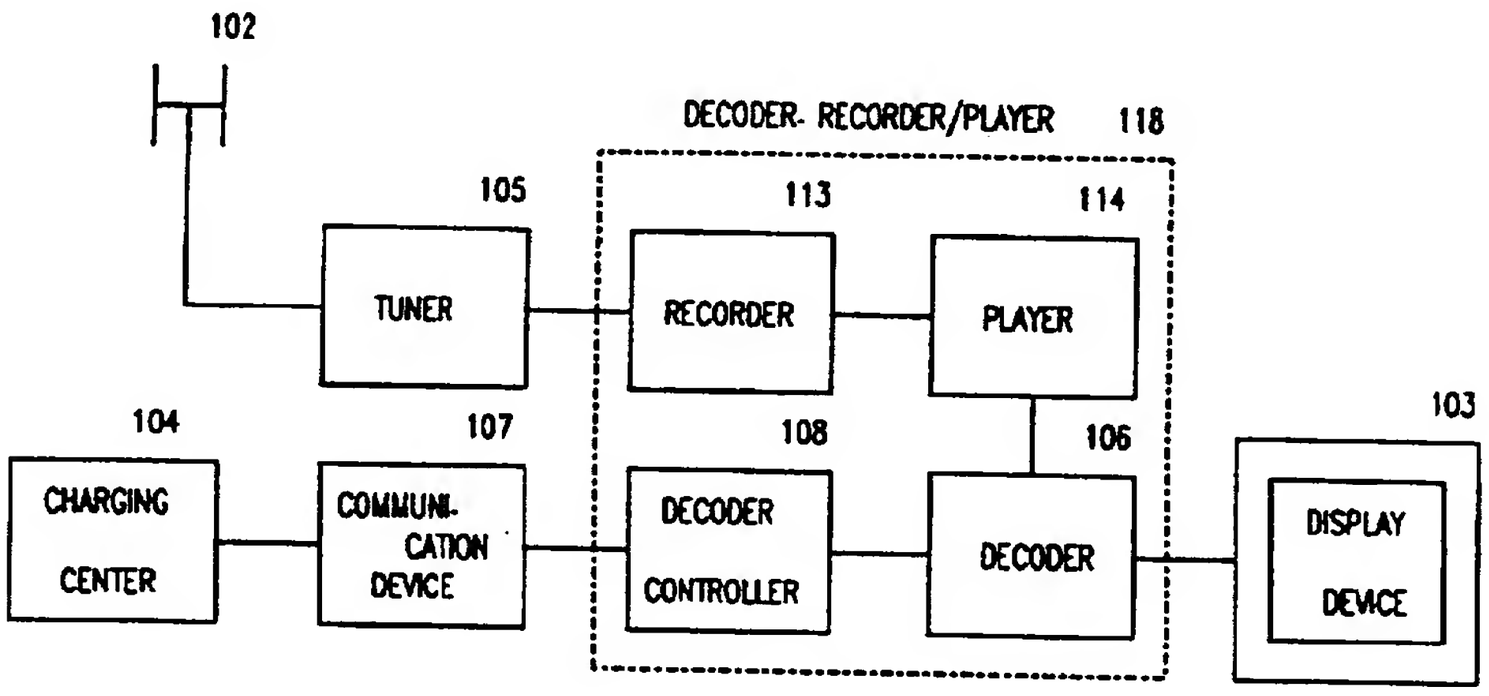
(57) A signal recording/playing system for recording a plurality of signals on a recording medium and for using the specific signals only out of the plurality of signals, is provided.

In an apparatus according to the present invention, the signal scrambled and supplied to a recorder 113 is recorded on a recording medium such as tape or disk, in scrambled form.

The signal recorded on the recording medium in scrambled form is supplied to a player 114 and is descrambled by scramble data which is supplied and stored in a storing medium such as IC card and the like, not from the recording medium to be played, and then, the descrambled signal is output, in a playing apparatus.

The scramble data is supplied on on-line basis by public telephone line through communication device 107 or on off-line basis by IC card, etc. The scramble data is then, supplied from the communication device to the decoder controller 108 on on-line basis by electric signal, radio wave, light wave or ultrasonic wave or on off-line basis by IC card or flexible disk.

FIG. 5




At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

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FIG. 1

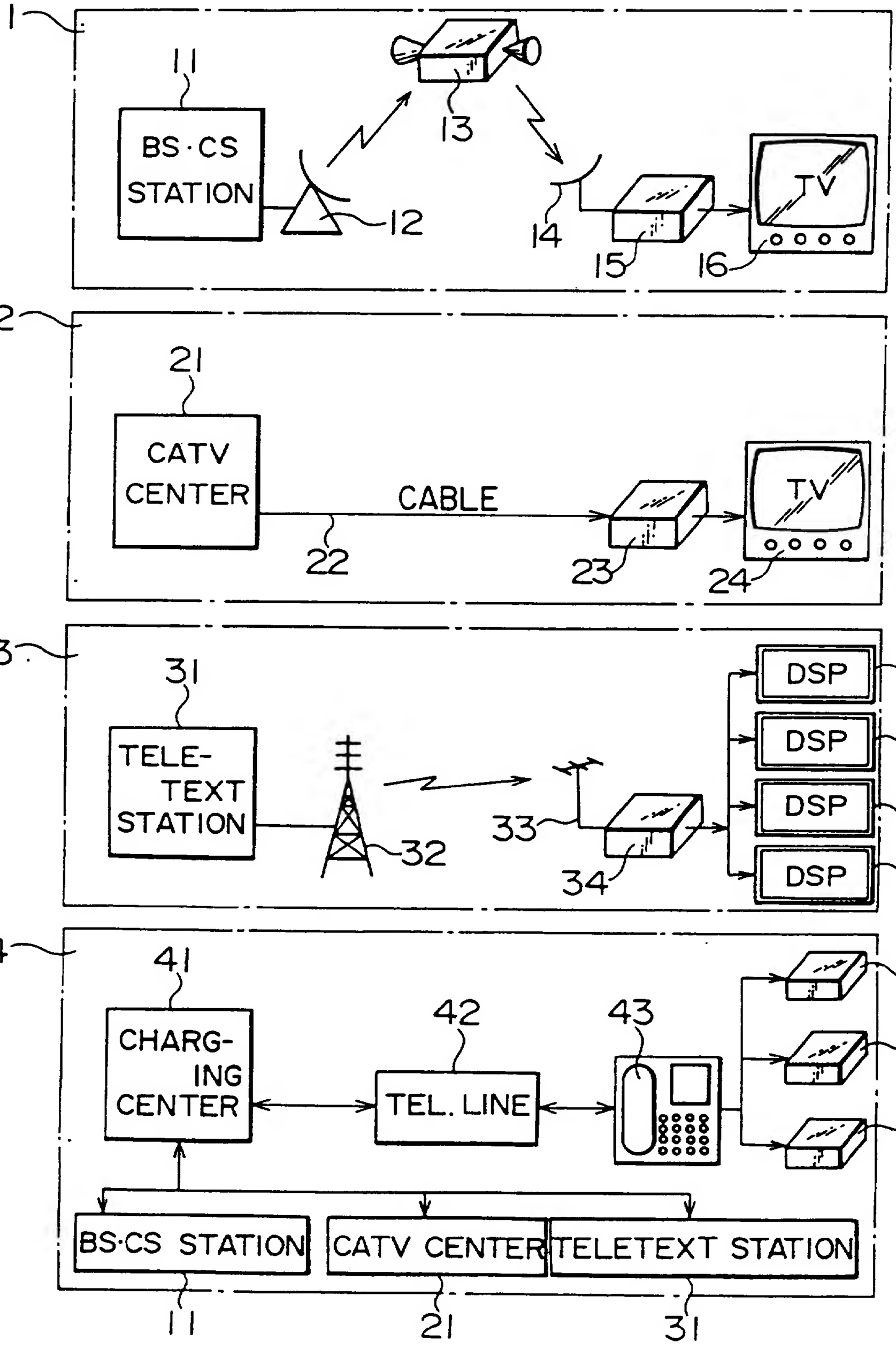

1
11
BS·CS
STATION
12
13
14
15
16
TV
2
21
CATV
CENTER
CABLE
22
23
24
TV
3
31
TELE-
TEXT
STATION
32
33
34
DSP
DSP
DSP
DSP
35
35
35
35
4
41
CHARG-
ING
CENTER
42
TEL. LINE
43
15
23
34
BS·CS STATION
CATV CENTER
TELETEXT STATION
11
21
31

FIG. 2

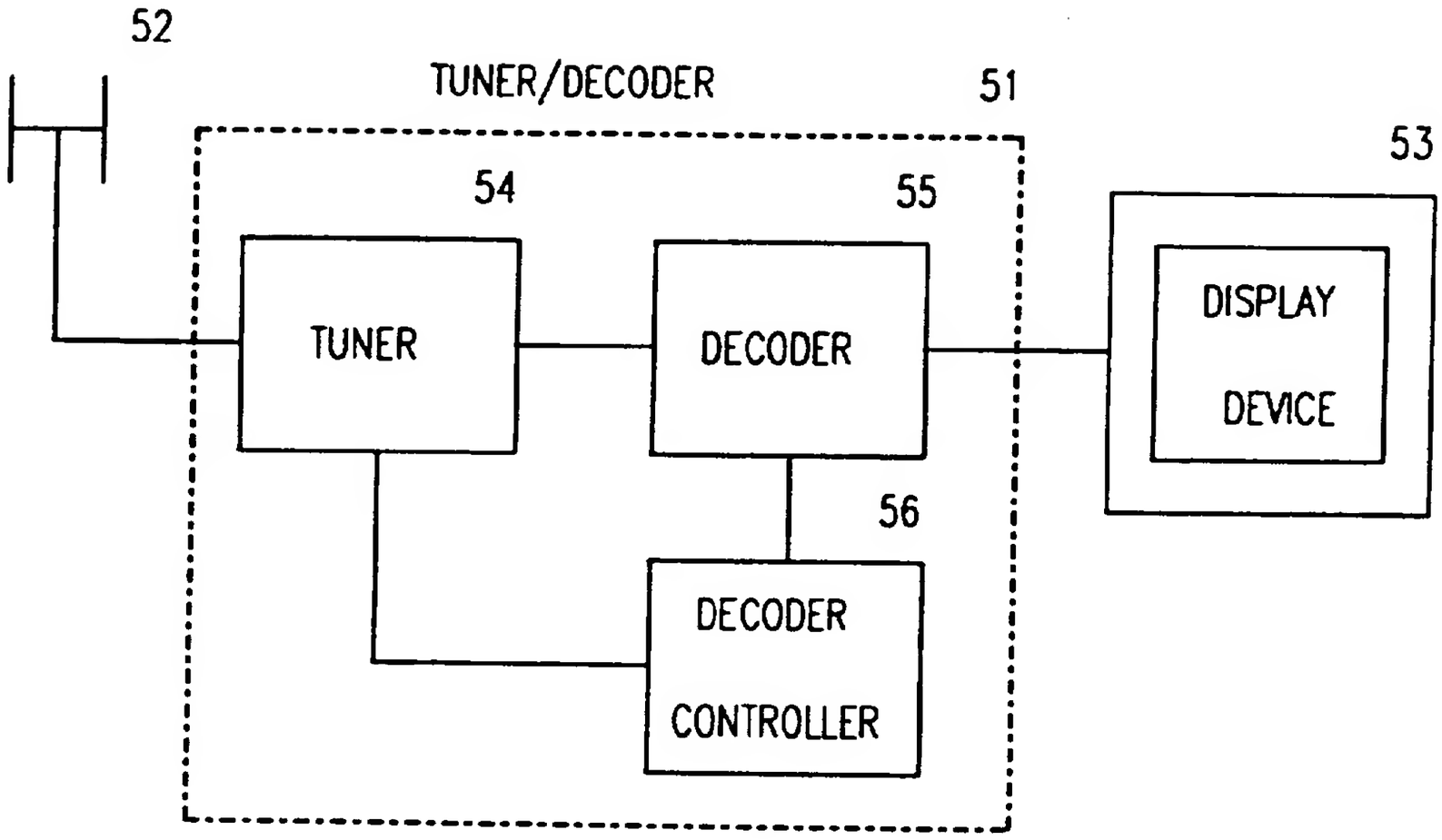

52
TUNER/DECODER
51
53
54
55
TUNER
DECODER
DISPLAY
DEVICE
56
DECODER
CONTROLLER

FIG. 3

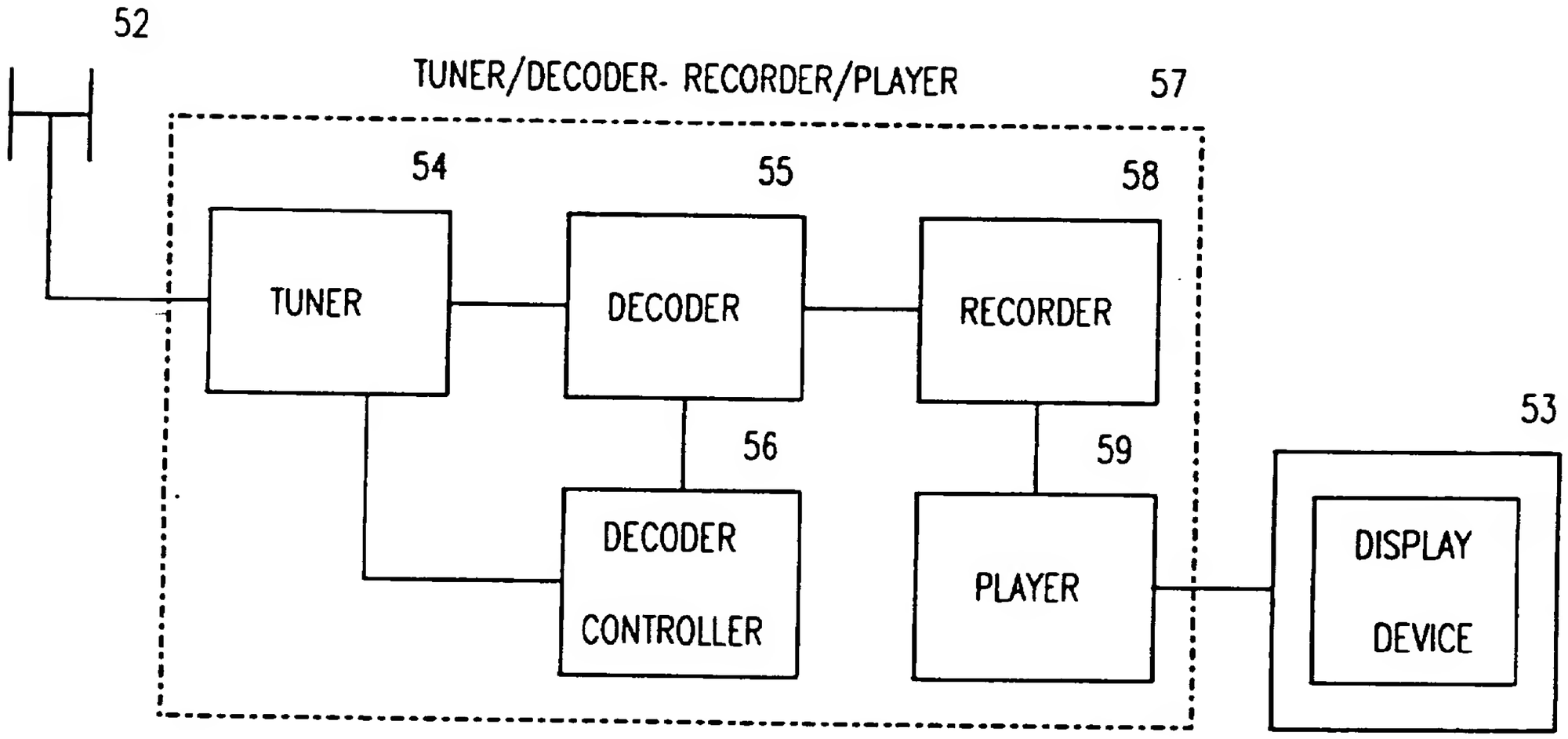

52
TUNER/DECODER- RECORDER/PLAYER
57
54
55
58
TUNER
DECODER
RECORDER
53
56
59
DECODER
CONTROLLER
PLAYER
DISPLAY
DEVICE

FIG. 4

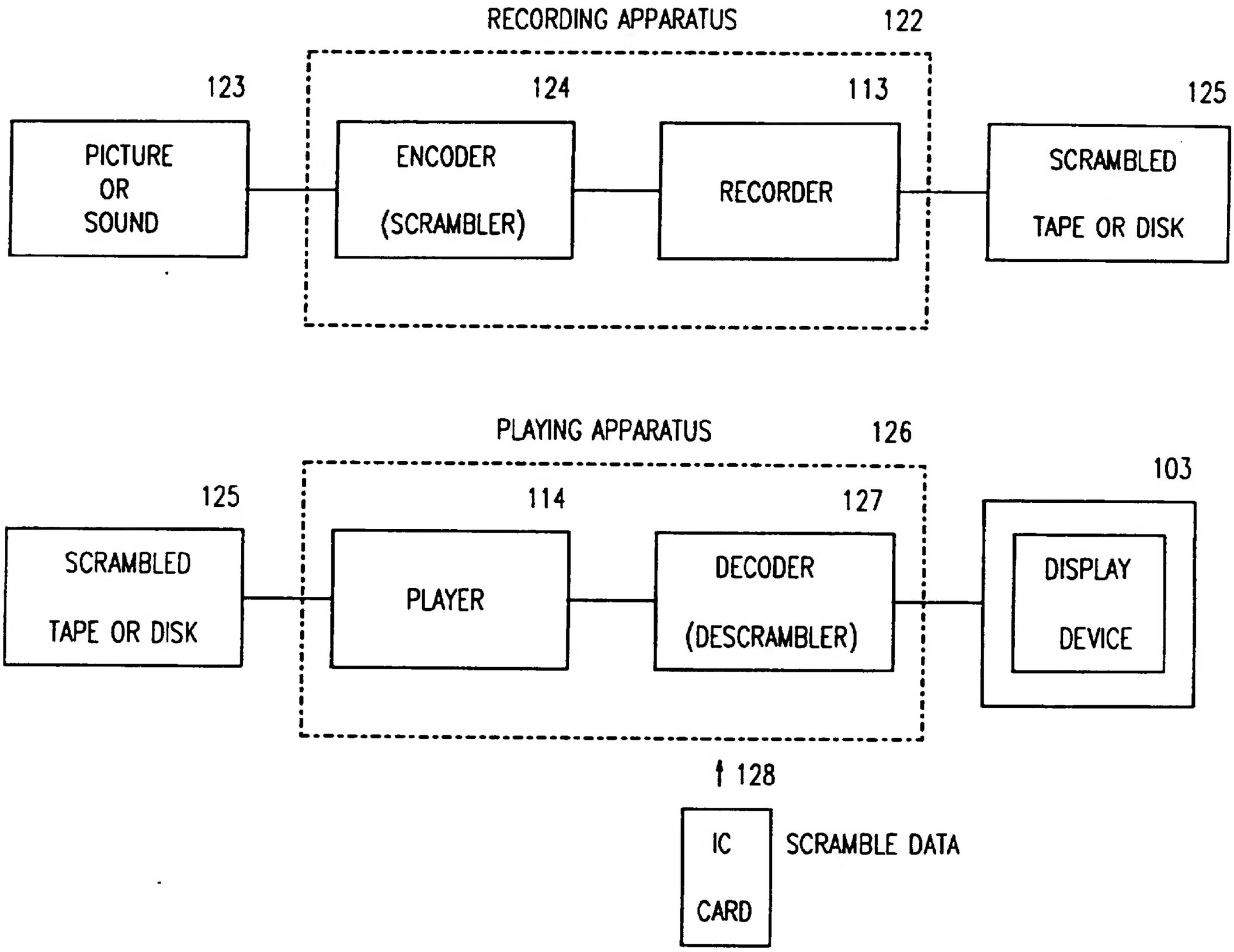

RECORDING APPARATUS
122
123
124
113
125
PICTURE OR SOUND
ENCODER (SCRAMBLER)
RECORDER
SCRAMBLED TAPE OR DISK
PLAYING APPARATUS
126
103
125
114
127
SCRAMBLED TAPE OR DISK
PLAYER
DECODER (DESCRAMBLER)
DISPLAY DEVICE
128
IC CARD
SCRAMBLE DATA

FIG. 5

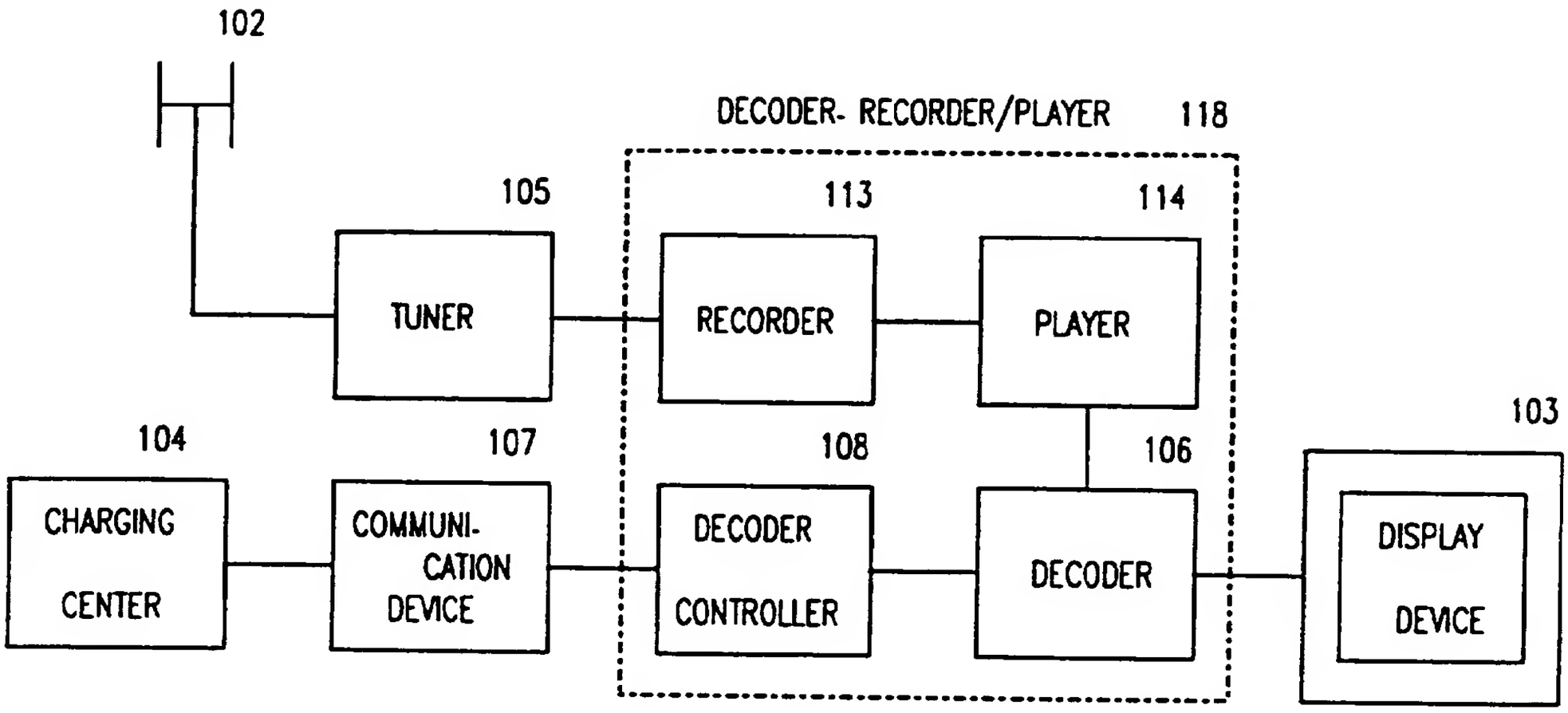

102
DECODER- RECORDER/PLAYER
118
105
113
114
TUNER
RECORDER
PLAYER
104
107
108
106
103
CHARGING CENTER
COMMUNI-CATION DEVICE
DECODER CONTROLLER
DECODER
DISPLAY DEVICE

FIG. 6

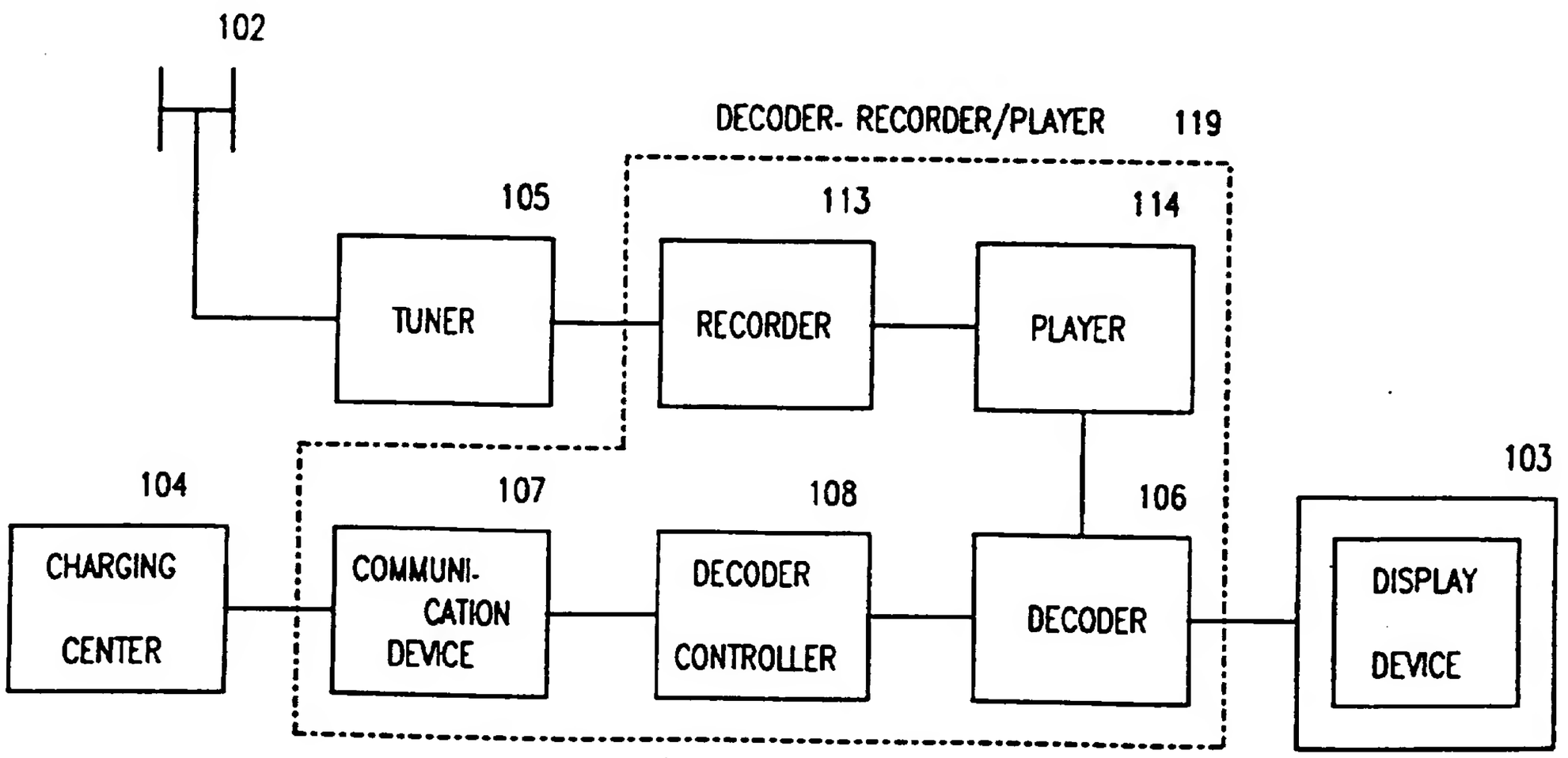

102
DECODER- RECORDER/PLAYER
119
105
113
114
TUNER
RECORDER
PLAYER
104
107
108
106
103
CHARGING CENTER
COMMUNI-CATION DEVICE
DECODER CONTROLLER
DECODER
DISPLAY DEVICE

FIG. 7

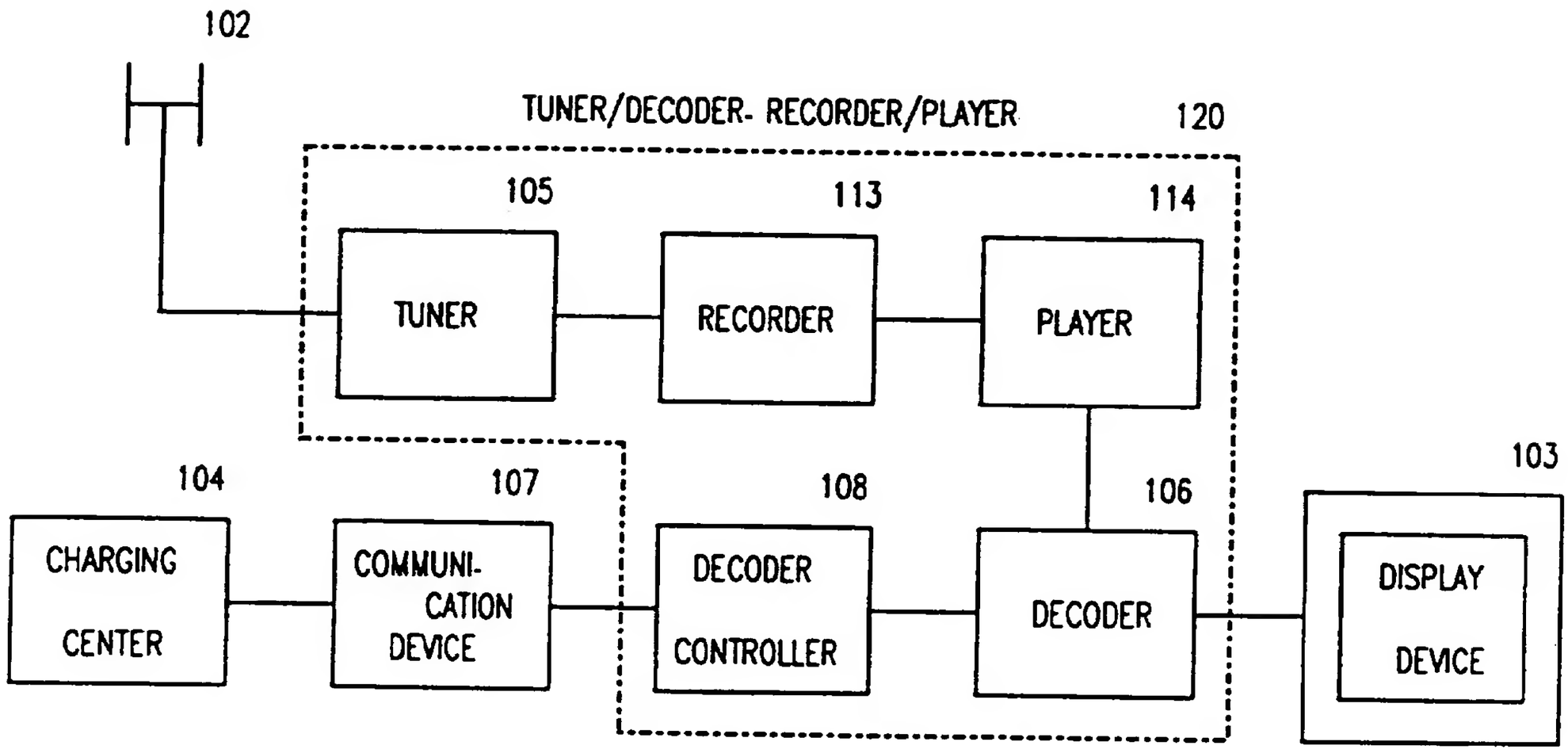
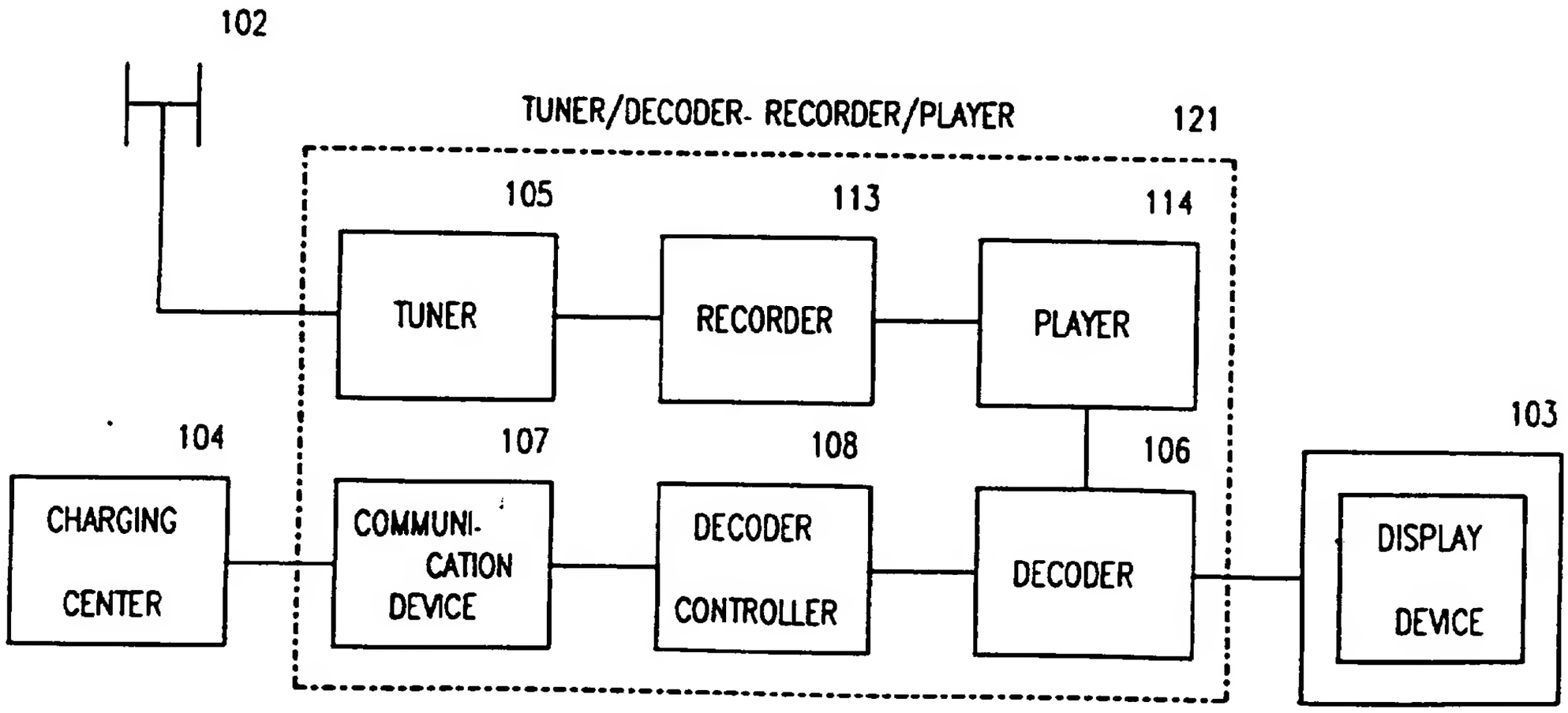

102
TUNER/DECODER- RECORDER/PLAYER
120
105
113
114
TUNER
RECORDER
PLAYER
104
107
108
106
103
CHARGING CENTER
COMMUNI-CATION DEVICE
DECODER CONTROLLER
DECODER
DISPLAY DEVICE

FIG. 8


102
TUNER/DECODER- RECORDER/PLAYER
121
105
113
114
TUNER
RECORDER
PLAYER
104
107
108
106
103
CHARGING CENTER
COMMUNI-CATION DEVICE
DECODER CONTROLLER
DECODER
DISPLAY DEVICE

SPECIFICATION

2304009

# TITLE OF THE INVENTION
# SIGNAL RECORDING/PLAYING SYSTEM
# BACKGROUND OF THE INVENTION

The present invention relates to a system for recording and playing signals, chargeable according to use of broadcasting program, data and the like.

In the information-oriented society of today, satellite television broadcasting via broadcasting satellite (BS) or communication satellite (CS) as well as cable television broadcasting called CATV (cable television) using coaxial cable or optical fiber cable are increasingly propagated.

Also, multiplex teletext broadcasting for separately transmitting character information via television wave is also being propagated.

In some of these satellite television broadcasting systems, unlike conventional type terrestrial television broadcasting, to which anybody is entitled to have access, a scrambled television program is transmitted so that only the subscribed viewers who signed the viewing contract can view the program and the subscribed viewers receive the program on pay basis using tuner/decoder, which can descramble the program.

In order to view the program on such pay satellite television broadcasting, it is necessary to use special-purpose tuner/decoder. The tuner/decoder is provided with ID code, which is transmitted regularly (e.g. once monthly) from satellite, and only the tuner/decoder accepting the transmitted ID code can descramble the program.

For this reason, problems may arise in some cases. For instance, the

television viewers cannot view by contracting some cases, or if they failed to accept ID code from some reasons, it is not possible to view the program even though they have already subscribed for the program.

Because the tuner/decoder is of special-purpose type, many types of tuner/decoders are needed in order to view the programs from many pay satellite television broadcasting systems.

In CATV, which can transmit several tens of channels at the same time, special channels for broadcasting motion pictures, sports programs, music programs, etc. are broadcast in addition to general channels, which are not scrambled and can be viewed by comprehensive contract. The programs of such special television channels are transmitted as scrambled pay television channels. To view the programs in the scrambled channels, it is necessary to sign a contract for descrambling. Because the contract period is normally renewed by about one month, it is not possible to view the programs by contract signed at any desired time.

In the conventional pay-per-view program receiving system, scramble data for descrambling the scrambled broadcasting program signal is supplied to the receiving apparatus through the same radio wave as the broadcasting program signal.

In order to have access to live sports programs, motion picture programs or music programs to be broadcast through the scrambled satellite television broadcasting or CATV channels, there is a special system, in which a viewing time recorder is installed on each television set, and a fee is to be paid by deferred payment based on the actually viewed programs. However, much labor is required for the control and fee collection for such system.

When a television viewer receives programs from terrestrial or satellite television broadcasting and secondarily distributes them to a number of display

devices, general television viewers may have to pay for some of the programs due to copyright even though the programs are offered free of charge from the original broadcasting station.

In this way, if the viewer wants to distribute the programs from terrestrial or satellite television broadcasting on pay basis, there is no means to sign the subscription contract for individual programs same as in the cases of viewing satellite television broadcasting or CATV programs, and each viewer must sign subscription contract for each channel for the distribution.

To solve the above problems, the present inventors have filed Japanese Patent Application No. 4－199942, which discloses a pay broadcasting system, characterized in that a charging center sends a viewing permit code for viewing a pay program to a data communication device in response to a request for viewing the pay program, which is executed from a pay－per－program viewer through a public telephone line by a data communication device and collects a fee for such program, and a receiving device, when it accepts the viewing permit code, displays a pay program according to the viewing permit code.

In the following, description will be given on the above invention.

Fig. 1 shows a pay－per－view broadcasting system of the above invention. The broadcasting system comprises a satellite television broadcasting system 1, a CATV system 2, a multiplex teletext broadcasting system 3 using terrestrial television broadcasting, and a charging system 4.

In the satellite television broadcasting system 1 using BS or CS, reference numeral 11 represents a terrestrial station of satellite television broadcasting, and television wave including a program code and a scrambled television signal is transmitted from a satellite communication transmitting antenna 12 to a geostationary satellite 13 on a geostationary orbit about 36,000 km above the

equator.

When the television wave from satellite communication transmitting antenna 12 is received, the geostationary satellite 13 amplifies the received television wave, converts it to the frequency in the order of 10 GHz, and transmits it to the ground.

The viewer receives the television wave of 10 GHz from the geostationary satellite 13 by a satellite television broadcasting receiving antenna 14, and the wave is converted to the frequency in the order of 1 GHz and is sent to a satellite television broadcasting receiving tuner/decoder 15. The satellite broadcasting receiving tuner/decoder 15 picks up video signal and audio signal from the television wave, sends them directly as video and audio signals to a television set or converts them again to the frequency receivable by the television set.

This satellite broadcasting system itself is the same as a conventional system, while, in this satellite television broadcasting, the program is scrambled, and only the viewers having the viewing permit code for descrambling the program can view the television program.

In CATV system 2, reference numeral 21 represents a CATV broadcasting center, 22 a coaxial cable or an optical fiber cable for transmitting TV signal, and 23 is a CATV adapter/decoder. CATV adapter/decoder 23 picks up video signal and audio signal from CATV signal, descrambles them by decode signal. Further, the signals are sent directly as video and audio signals to the television set or by converting them to the frequency receivable by the television set.

In the multiplex teletext broadcasting system 3, reference numeral 31 is a terrestrial multiplex teletext broadcasting station for transmitting television signal with multiplex teletext on television wave program as terrestrial television wave from a television transmitting antenna 32. The transmitted terrestrial television wave

is received by a television wave receiving antenna 33, and multiplex teletext signal is picked up from the television signal by a multiplex teletext adapter 34, and the signal is distributed to display devices 35, 35, 35, ..... such as video monitor, LED (light emitting diode) display device, LCD (liquid crystal device) display device, display–phone, personal computer display device, etc.

On the other hand, the charging system 4 comprises a charging center 41, a public telephone line 42 and a data communication device 43.

In this charging system 4, the pay–per–viewer requests to the charging center 41 through the public telephone line 42 by the data communication device 43 such as display–phone.

Upon receipt of the request from the pay–per–viewer, a viewing permit code for viewing a pay program is sent from the charging center 41 to the data communication device 43.

The viewing permit code sent to the data communication device 43 is sent to a satellite broadcasting tuner/decoder 15, a CATV adapter/decoder 23 or a multiplex teletext adapter 34 by on–line via a parallel data line, serial data line of RS–232C standard or ordinary public telephone line using modem, or by off–line via semiconductor memory unit such as IC card, memory card, etc. or magnetic memory unit such as magnetic card, magnetic disk, etc.

Upon receipt of the viewing permit code, the satellite broadcasting tuner/decoder 15, CATV adapter/decoder 23 or multiplex teletext adapter 34 descrambles the program, to which a program code corresponding to the viewing permit code had been given, and television signal is sent to a television set 16 or 24 or teletext signal is sent to display devices 35, 35, 35, ..... Thus, the viewable picture is displayed on the television set 16 or 24, and character signal is displayed on the display devices 35, 35,35, .....

On the other hand, the information of a fee for each pay program and the viewing permit code for each pay program are sent in advance from the satellite broadcasting terrestrial station 11, CATV center 21 or the terrestrial wave broadcasting station 31 to the charging center 41. The charging center 41 sends scrambled decode data, i.e. the viewing permit code to the viewers, who had requested for viewing, and collects the fee on behalf of the satellite broadcasting terrestrial station 11, CATV center 21 or the terrestrial wave broadcasting station 31.

Fig. 2 and Fig. 3 each represents the arrangement of a receiving apparatus used in above—mentioned broadcasting system.

The receiving apparatus shown in Fig. 2 is a receiving apparatus only for receiving the broadcasting program. In this receiving apparatus, a display device 53 is coupled to a tuner/decoder 51. The tuner/decorder 51 comprises a tuner 54, a decoder 55 coupled to the tuner, and a decoder controller 56 coupled to the tuner 54 and the decoder 55. An antenna 52 is coupled to the tuner 54, and the display device 53 is coupled to the decoder 55.

In this receiving apparatus, the tuner 54 picks up the scrambled program signal and the scramble data from the received broadcasting wave. The scramble data thus picked up is stored in the decoder controller 56 and is supplied to the decoder 55 when the scrambled broadcasting program is viewed, and the scrambled broadcasting program signal is descrambled. Thus, the descrambled broadcasting program is outputted to the display device 53.

Fig. 3 shows a receiving apparatus, which receives broadcasting program and performs recording/playing. The display device 53 is coupled to a tuner/decoder—recorder/player 57 of this receiving apparatus. The tuner/decoder—recorder/player 57 comprises a tuner 54, a decoder 55 coupled to the tuner 54, and a decoder controller 56 coupled to the tuner 54 and to the decoder 55,

and further, a recorder 58 coupled to the decoder 55, and a player 59 coupled to the recorder 58. An antenna 52 is coupled to the tuner 54, and the display device 53 is coupled to the player 59.

The tuner 54 of the tuner/decoder–recorder/player 57 picks up the scrambled program signal and the scramble data from the received broadcasting wave. The scramble data thus picked up is stored in the decoder controller 56 and is supplied to the decoder 55 when the scrambled broadcasting program signal is recorded, and the broadcasting program signal is descrambled. Thus, the descrambled broadcasting program signal is recorded on tape or disk at the recorder 58. The broadcasting program signal recorded on tape or disk is played by the player 59 and is outputted to the display device 53.

## SUMMARY OF THE INVENTION

It is an object of the present invention to provide a signal recording/playing system for allowing only specific signals out of a plurality of signals to be recorded on a recording medium.

According to one aspect of the present invention there is provided a signal recording/playing system, comprising: a recording apparatus for scrambling a plurality of signals, each of said plurality of signals scrambled by a respective one of a plurality of different scramble data, and for recording said plurality of signals scrambled each by a respective one of said plurality of different scramble data on a recording medium; means for supplying scramble data to descramble one of said plurality of signals scrambled; and a playing apparatus for playing said recording medium, descrambling one of said plurality of signals scrambled, and supplying said one of plurality of signals descrambled to a display device.

According to another aspect of the present invention there is provided a signal recording/playing system, comprising: a recording apparatus for recording a plurality of signals, each of said plurality of signals being scrambled by a respective one of a plurality of different scramble data, on a recording medium; means for supplying scramble data to descramble one of said plurality of signals scrambled; and a playing apparatus for playing said recording medium, descrambling one of said plurality of signals scrambled, and supplying said one of plurality of signals descrambled to a display device.

For this purpose a signal which is scrambled and supplied to a recorder is recorded on a recording medium such as tape or disk in the scrambled form, in a recording apparatus according to the present invention.

And in a playing apparatus, the signal recorded on the recording medium in scrambled form is supplied to a player and is descrambled by scramble data which is supplied and stored in a storing medium such as IC card and the like, not from the recording medium to be played.

The scramble data is supplied via a communication device on on-line basis by public telephone line or on off-line basis by IC card, etc. The scramble data is then, supplied from the communication device to the decoder controller on on-line basis by electric signal, radio wave, light wave or ultrasonic wave, or on off-line basis by IC card or flexible disk.

## BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a general view of a system according to the present invention;

Fig. 2 is a block diagram of a tuner/decoder used in the system of Fig. 1;

Fig. 3 is a block diagram of a tuner/decoder–recorder/player used in the system of Fig. 1;

Fig. 4 is a block diagram of a recording/playing apparatus to which the present invention is applied;

Fig. 5 is a block diagram of a decoder–recorder/player to which the present invention is applied;

Fig. 6 is a block diagram of another decoder–recorder/player to which the present invention is applied;

Fig. 7 is a block diagram of a tuner/decoder–recorder/player to which the present invention is applied;

Fig. 8 is a block diagram of another tuner/decoder–recorder/player to which the present invention is applied.

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

In the following, description will be given on the present invention in connection with the drawings.

An apparatus shown in Fig. 4 shows a basic arrangement of the recording/playing apparatus to which the present inveition is applied.

The recording/playing apparatus in Fig. 4 comprises a recording apparatus 122 and a playing apparatus 126. The recording apparatus 122 comprises an encoder 124, serving as a scrambler, and a recorder 113. The playing apparatus 126 comprises a player 114 and a decoder 127, serving as a descrambler.

In the recording apparatus 122, an audio signal or a video signal 123 is scrambled by the encoder 124 and is supplied to the recorder 113 in the scrambled state, and it is recorded on a recording medium 125 such as tape or disk.

In the playing apparatus 126, the signal recorded on the recording medium 125 in scrambled state is sent to the player 114 and it is descrambled by the decoder 127 by scramble data stored in a storing medium 128 such as IC card and the like, which is supplied separately from the recording medium to be played. Thus, the descrambled audio or video signal is outputted on the display device 103.

By the system and the apparatus with the above arrangement, it is possible to record a plurality of programs on the recording media and to sell or rent it, and also to view a desired program from among the recorded programs.

Next, referring to Fig. 5 to Fig. 8, description will be given on apparatus each of which performs recording/playing and to which the present invention is applied.

By the arrangement of these applied examples, it is possible to record a

plurality of programs broadcast at midnight without subscription and to achieve pay–per–view on demand basis, i.e. to descramble any desired one of the recorded broadcasting program signal.

Fig. 5 and Fig. 6 each represents an example to which the present invention is applied, and in which a tuner is separately arranged.

The apparatus shown in Fig. 5 is an apparatus with the most basic arrangement and has different arrangement from that of the apparatus as described above, which receives broadcasting program signal and performs recording/playing. To a decoder–recorder/player 118, serving as a receiving apparatus, a tuner 105, a data communication device 107 and a display device 103 are coupled. The decoder–recorder/player 118 comprises a recorder 113, a player 114 coupled to the recorder 113, a decoder controller 108, and a decoder 106 coupled to the decoder controller 108 and the player 114. The tuner 105 with an antenna 102 coupled to it is coupled to the recorder 113, and the data communication device 107 provided outside the decoder–recorder/player 118 and coupled to a charging center 104 through public telephone line is coupled to the decoder controller 108.

The tuner 105 coupled to the decoder–recorder/player 118 picks up scrambled broadcasting program signal from received broadcasting wave, and the scrambled broadcasting program signal is recorded on a recording medium such as tape or disk by the recorder 113. On the other hand, to a request of viewing executed through public telephone line, a scramble data, i.e. a viewing permit code, is sent from the charging center 104 to the data communication device 107. The scramble data sent to the data communication device 107 is sent to the decoder controller 108 of the decoder–recorder/player 118 and is stored there.

When a broadcasting program is broadcast after a request of viewing has been filed, it is necessary to store the supplied scramble data, and it may be stored, in addition to the decoder controller 108, at the data communication device 107 or other

means.

The scramble data thus stored is supplied from the decoder controller 108 to the decoder 106 when the broadcasting program signal, which is recorded on the recording medium as it is scrambled, is played by the player 114, and the scrambled broadcasting program signal is descrambled.

In this way, the descrambled broadcasting program signal is outputted to the display device 103.

A data communication device 43 of a system shown in Fig. 1 is a display phone. In addition, the data communication devices include telephone set capable to execute data communication such as pushbutton telephone set, portable telephone set, etc. or devices such as personal computer or word-processor connected with modem.

On-line input means from the data communication devices include communication means using cable such as RS232C as wired input means, and communication means such as radio wave, light, ultrasonic wave, etc. as wireless input means. Also, IC card, flexible disk, etc. are available as off-line input means.

If the so-called PDA (personal digital assistants), i.e. a portable electronic device connectable to public telephone line and having optical communication function, is used, it is possible to accept scramble data from the charging center and to supply it to the receiving apparatus by a single apparatus.

If the function of an FM receiving set is given to this PDA device, it can be used as a receiving apparatus for FM multiplex teletext broadcasting.

Fig. 6 represents another applied example of the apparatus shown in Fig. 5. To a decoder-recorder/player 119, a tuner 105 and a display device 103 are coupled. The decoder-recorder/player 119 comprises a recorder 113, a player 114 coupled

to the recorder 113, a data communication device 107, a decoder controller 108 coupled to the data communication device 107, and a decoder 106 coupled to the decoder controller 108 and the player 114. The tuner 105 with an antenna 102 coupled to it is coupled to the recorder 113, a display device 103 is coupled to the decorder 106, and the data communication device 107 is coupled to a charging center 104 through public telephone line.

The tuner 105 coupled to the decoder–recorder/player 119 picks up scrambled broadcasting program signal from received broadcasting wave, and the scrambled broadcasting program signal is recorded on a recording medium such as tape or disk by the recorder 113. On the other hand, to a request of viewing executed through public telephone line, a scramble data, i.e. a viewing permit code, is sent from the charging center 104 to the data communication device 107 of the decoder–recorder/player 119. The scramble data sent to the data communication device 107 is sent to the decoder controller 108 and is stored there.

When a broadcasting program is broadcast after a request of viewing has been filed, it is necessary to store the supplied scramble data, and it may be stored, in addition to the decoder controller 108, at the data communication device 107 or other means.

The scramble data thus stored is supplied from the decoder controller 108 to the decoder 106 when the broadcasting program signal, which is recorded on the recording medium as it is scrambled, is played by the player 114, and the scrambled broadcasting program signal is descrambled.

In this way, the descrambled broadcasting program signal is outputted to the display device 103.

A data communication device 43 of the system shown in Fig. 1 is a display phone. In addition, the data communication devices include telephone set capable to

execute data communication such as pushbutton telephone set, portable telephone set, etc. or devices such as personal computer or word-processor connected with modem.

On-line input means from the data communication devices include communication means using cable such as RS232C as wired input means, and communication means such as radio wave, light, ultrasonic wave, etc. as wireless input means. Also, IC card, flexible disk, etc. are available as off-line input means.

If the so-called PDA (personal digital assistants), i.e. a portable electronic device connectable to public telephone line and having optical communication function, is used, it is possible to accept scramble data from the charging center and to supply it to the receiving apparatus by a single apparatus.

If the function of an FM receiving set is given to this PDA device, it can be used as a receiving apparatus for FM multiplex teletext broadcasting.

Fig. 7 and Fig. 8 each represents an example of apparatus to which the present invention is applied, with a tuner integrated with it.

To a tuner/decoder-recorder/player 120, illustrated in Fig. 7, a display device 103 is coupled. The tuner/decoder-recorder/player 112 comprises a tuner 105, a recorder 113 coupled to the tuner 105, a player 114 coupled to the recorder 113, a decoder controller 108, and a decoder 106 coupled to the decoder controller 108, and further, the decoder 106 is coupled to the player 114. An antenna 102 is coupled to the tuner 105, and a data communication device 107 provided outside the tuner/decoder-recorder/player 120 and coupled to a charging center 104 through public telephone line is coupled to the decoder controller 108.

The tuner 105 of the tuner/decoder-recorder/player 120 picks up scrambled broadcasting program signal from received broadcasting wave, and the scrambled broadcasting program signal is recorded on a recording medium such as tape or disk

by the recorder 113. On the other hand, to a request of viewing through public telephone line, a scramble data, i.e. a viewing permit code, is sent from the charging center 104 to the data communication device 107. The scramble data sent to the data communication device 107 is supplied to the decoder controller 108 of the tuner–recorder/player 120 and is stored there.

When a broadcasting program is broadcast after a request of viewing has been filed, it is necessary to store the supplied scramble data, and it may be stored, in addition to the decoder controller 108, at the data communication device 107 or other means.

The scramble data thus stored is supplied from the decoder controller 108 to the decoder 106 when the broadcasting program signal, which is recorded on the recording medium as it is scrambled, is played by the player 114, and the scrambled broadcasting program signal is descrambled.

In this way, the descrambled broadcasting program signal is outputted to the display device 103.

A data communication device 43 of the system shown in Fig. 1 is a display phone. In addition, the data communication devices include telephone set capable to execute data communication such as pushbutton telephone set, portable telephone set, etc. or devices such as personal computer or word–processor connected with modem.

On–line input means from the data communication devices include communication means using cable such as RS232C as wired input means, and communication means such as radio wave, light, ultrasonic wave, etc. as wireless input means. Also, IC card, flexible disk, etc. are available as off–line input means.

If the so–called PDA (personal digital assistants), i.e. a portable electronic device connectable to public telephone line and having optical communication

function, is used, it is possible to accept scramble data from the charging center and to supply it to the receiving apparatus by a single apparatus.

If the function of an FM receiving set is given to this PDA device, it can be used as a receiving apparatus for FM multiplex teletext broadcasting.

The apparatus shown in Fig. 8 is another present invention applied example of the apparatus of Fig. 7. To a tuner/decoder–recorder/player 121, a display device 103 is coupled. The tuner/decoder–recorder/player 121 comprises a tuner 105, a recorder 113 coupled to the tuner 105, a player 114 coupled to the recorder 113, a data communication device 107, a decoder controller 108 coupled to the data communication device 107, and a decoder 106 coupled to the decoder controller 108, and further, the player 114 is coupled to the decoder 106. The tuner 105 is coupled to an antenna 102, and the display device 103 is coupled to the decoder 106. The data communication device 107 is coupled to a charging center 104 through public telephone line.

The tuner 105 of the tuner/decoder–recorder/player 121 picks up scrambled broadcasting program signal from received broadcasting wave, and the scrambled broadcasting program signal is recorded on recording medium such as tape or disk by the recorder 113. On the other hand, to a request of viewing executed through public telephone line, a scramble data, i.e. a viewing permit code, is sent from the charging center 104 to the data communication device 107, and the scramble data sent to the data communication device 107 is supplied to the decoder controller 108 and is stored there.

When a broadcasting program is broadcast after a request of viewing has been filed, it is necessary to store the supplied scramble data, and it may be stored, in addition to the decoder controller 108, at the data communication device 107 or other means.

The scramble data thus stored is supplied from the decoder controller 108 to the decoder 106 when the broadcasting program signal, which is recorded on the recording medium as it is scrambled, is played by the player 114, and the scrambled broadcasting program signal is descrambled.

In this way, the descrambled broadcasting program signal is outputted to the display device 103.

In the above embodiments, description has been given on the apparatuses used in a charging system for television broadcasting or audio broadcasting. However, these apparatuses can be applied for the other information transmitting means, for which it is desired to charge a fee for each individual program, e.g. broadcasting and communication means such as data broadcasting, data communication, etc., or various types of broadcasting and communication means using terrestrial waves such as data broadcasting or data communication such as multiplex television broadcasting or FM multiplex broadcasting. Thus, it is possible according to the present invention to provide a receiving apparatus to charge the scrambled broadcasting program.

CLAIMS:

1. A signal recording/playing system, comprising:

a recording apparatus for scrambling a plurality of signals, each of said plurality of signals scrambled by a respective one of a plurality of different scramble data, and for recording said plurality of signals scrambled each by a respective one of said plurality of different scramble data on a recording medium;

means for supplying scramble data to descramble one of said plurality of signals scrambled; and

a playing apparatus for playing said recording medium, descrambling one of said plurality of signals scrambled, and supplying said one of plurality of signals descrambled to a display device.

2. A signal recording/playing system, comprising:

a recording apparatus for recording a plurality of signals, each of said plurality of signals being scrambled by a respective one of a plurality of different scramble data, on a recording medium;

means for supplying scramble data to descramble one of said plurality of signals scrambled; and

a playing apparatus for playing said recording medium, descrambling one of said plurality of signals scrambled, and supplying said one of plurality of signals descrambled to a display device.

3. A signal recording/playing system according to claim 1 or 2, wherein said recording medium is a tape.

4. A signal recording/playing system according to claim 1 or 2, wherein said recording medium is a disk.

5. A signal recording/playing system according to any one of the preceding claims, wherein said scramble data is

supplied form a data communication device connected with a communication line.

6. A signal recording/playing system according to any one of claims 1 to 4, wherein said scramble data is supplied from a storing medium.

7. A signal recording/playing system according to claim 6, said storing medium is an IC card.

8. A signal recording/playing system substantially as hereinbefore described with reference to, and as illustrated in Fig. 4; or Fig. 5; or Fig. 6; or Fig. 7; or Fig. 8 of the accompanying drawings.

The Patent Office

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**Application No:** GB 9620719.6
**Claims searched:** ALL

**Examiner:** Mr.SAT SATKURUNATH
**Date of search:** 29 November 1996

## Patents Act 1977
## Search Report under Section 17

**Databases searched:**

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.O): G5R: RAC, RGA, RHB, RHX;H4F: FDE, FEH, FDC;H4R: RCSC, RCSS, RCST

Int Cl (Ed.6): G11B, H04N

Other: Online: WPI

**Documents considered to be relevant:**

| Category | Identity of document and relevant passage | Relevant to claims |
|---|---|---|
| A | GB 2067871 A MARCONI - see especially figure 1 and lines 102-116 on page 3 and lines 11-40 on page 4 | 1, 2 |

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|---|---|---|---|
| X | Document indicating lack of novelty or inventive step | A | Document indicating technological background and/or state of the art. |
| Y | Document indicating lack of inventive step if combined with one or more other documents of same category. | P | Document published on or after the declared priority date but before the filing date of this invention. |
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